

From

Applicant: University of California
Filed: Herewith
Docket: 1133.010WO1
Title: Bryostatins, Bryopyrans and Polyketides:
Compositions and Methods

COMPUTER READABLE FORM:

Medium Type: Diskette
Computer: IBM compatible
Operating System: WINDOWS 95
Software: FastSEQ Version 4.0

Date Recorded: August 3, 2000

**INTERNATIONAL PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: THE REGENTS OF THE UNIVERSITY OF CALIFORNIA et al.
Serial No.: New Filing
Filed: 04 August 2000 Docket: 1133.010WO1
Title: BRYOSTATINS, BRYOPYRANS, POLYKETIDES:
COMPOSITIONS AND METHODS

COMMUNICATION REGARDING SEQUENCE LISTING

BOX PCT
Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In accordance with Rule 1.821(e) and in compliance with WIPO Standard ST.23, submitted herewith is a copy of the SEQUENCE LISTING in computer readable form, as recited at pages 1- 80 of the above-identified international application also submitted herewith.

It is respectfully submitted that the contents of the paper version of the SEQUENCE LISTING recited at pages 1- 80 and the computer readable version of the same, both of which are submitted herewith, are identical. The enclosed SEQUENCE LISTING has been converted into the ASCII format using the Word(Perfect) conversion tool.

Please direct any inquiry to the below-signed attorney at (612)
373-6900.

Respectfully submitted,

SCHWEGMAN, LUNDBERG,
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P.O. Box 2938
Minneapolis, Minnesota 55402
(612) 373-6900

Date: 04 August 2000 By 
Ann S. Viksnins
Reg. No. 37,748

SEQUENCE LISTING

<110> University of California

5<120> Bryostatins, Bryopyrans and Polyketides: Compositions
and Methods

<130> 1133.010WO1

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<150> 60/147,283

<151> 1999-08-04

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<160> 38

<170> PatentIn Ver. 2.1

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 gctgggatag cgggcgtgac caaagtattt ttgtctttgc agcatcgcat gttaccaccc 180
 acgattcatt gtgaggatgt aaacccacag attgcgttgg aaggttagccc cttttatatac 240
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Asn Ile Gly His Leu Gly Val Gly Ala Gly Ile Ala Gly Val Thr Lys
 35 40 45

Val Leu Leu Ser Leu Gln His Arg Met Leu Pro Pro Thr Ile His Cys
 10 50 55 60

Glu Asp Val Asn Pro Gln Ile Ala Leu Glu Gly Ser Pro Phe Tyr Ile
 65 70 75 80

15 Asn Thr Glu Leu Lys Pro Trp Gln Ser Gly Asp Gly Ile Pro Arg Arg
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Ala Gly Val Ser Ser Phe Gly Val Ser
 100 105

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25

30

Asn Ile Gly His Leu Gly Val Gly Ala Gly Ile Ala Gly Val Thr Lys

15

35

40

45

Val Leu Leu Ser Leu Gln His Arg Met Leu Pro Pro Thr Ile His Cys

50

55

60

20Glu Asp Val Asn Pro Gln Ile Ala Leu Glu Gly Ser Pro Phe Tyr Ile

65

70

75

80

Asn Thr Glu Leu Lys Pro Trp Gln Ser Gly Asp Gly Ile Pro Arg Arg

85

90

95

25

Ala Gly Val Ser Ser Phe Gly Val Ser Gly Thr Asn Ala His Leu Val

100

105

110

Leu Glu Glu Tyr Thr His Arg Val Thr Ser Pro Leu Gln Asn Thr Ile

30

115

120

125

Leu Pro Gln Asn Gly Leu Phe Ile Val Pro Leu Ser Ala Lys Asn Asp

130

135

140

35Glu Cys Leu Asn Ala Cys Val Glu Arg Leu Leu Phe Phe Leu Lys Ser

145

150

155

160

Arg Gln Ser Asp Thr Tyr Lys Lys Tyr Ser Leu Ser Asp Thr Ala Pro

165

170

175

40

Ile Leu Leu Asp Leu Ala Tyr Thr Leu Gln Val Ser Arg Glu Ala Met
 180 185 190

Thr Lys Arg Val Ala Phe Val Val Lys Thr Thr Ile Glu Leu Met Glu
 5 195 200 205

Lys Leu Asn Ala Phe Ile Glu Lys Gln Asn Thr Ile Lys Ala Ser Asn
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Asn Glu Ser Thr Asp
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10

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25

30

Asn Ile Gly His Leu Asp Val Ala Ala Gly Val Val Gly Leu Ile Lys
 35 40 45

5

Thr Ala Leu Ser Leu Gln His Arg Leu Leu Pro Pro Thr Ile Asn Tyr
 50 55 60

Glu Ala Pro Asn Arg Glu Ile Asn Phe Glu Gln Ser Pro Phe His Val
 10 65 70 75 80

Ile Asp Glu Leu Thr Glu Trp Arg Gly Gln Gly Gly Pro Leu Arg Ala
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40 1

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10

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Val Asp Asn Trp Arg Lys Asn Thr Cys Ala Leu Gly Ser Val Lys Ser
 20 25 30

Asn Ile Gly His Thr Ser Ala Ala Ser Gly Val Ala Gly Ile His Lys
 5 35 40 45

Val Leu Leu Ser Leu Lys His Arg Gln Leu Val Ala Ser Leu His Phe
 50 55 60

10Asn Ser Ala Asn His His Phe Asp Phe Gln Gln Ser Pro Phe Tyr Val
 65 70 75 80

Asn Thr Gln Leu Arg Pro Trp Asp Gln Ala Glu Gly Leu Glu Glu Ser
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Arg Arg Arg Ala Ala Val Ser Ser Phe Gly Val Ser
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 ggggtattt ctggactgtat caaaggcgtt ctggcaatgc agcatggcgt gattccacag 180
 caattacact gcaaagaacc gagtcctcat atccccctggaa aacgtctgcc tctcgatttg 240
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20 25 30

5

Asn Ile Ser His Leu Glu Ala Ala Gly Gly Ile Ser Gly Leu Ile Lys
35 40 45

Ala Val Leu Ala Met Gln His Gly Val Ile Pro Gln Gln Leu His Cys
10 50 55 60

Lys Glu Pro Ser Pro His Ile Pro Trp Lys Arg Leu Pro Leu Asp Leu
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Val Thr Ala Ser Asp

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Asp Ser Gln Ser Thr Thr Tyr Leu Gly Ala Val Lys Ser Asn Ile Gly

5 20 25 30

His Ala Asn Ala Gly Ala Gly Ile Ala Gly Phe Ile Lys Thr Val Leu

35 40 45

10Ser Leu Tyr His Gly Lys Ile Ala Pro Asn Ala Gly Asn Thr Glu Pro

50 55 60

Asn Ala Ala Leu Asn Leu Asp Ala Phe His Phe Ala Leu Pro Lys Thr

65 70 75 80

15

Leu Leu Thr Trp Pro Glu Cys Asp Val Arg Arg Ala Ala Ile Ser Ser

85 90 95

Leu Gly Phe Gly

20 100

<210> 21

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gttgcagctc tgattaaggc agttttggtt cttcaacatg gcgtggctcc ggccaatttg 180

cactgtcaca aattgaatcc gcttctggat atcgacggct tcaatgttgt gttcccgca 240

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							20				25				30	

Gly	His	Leu	Glu	Ala	Thr	Ala	Gly	Val	Ala	Ala	Leu	Ile	Lys	Ala	Val	
							35				40				45	

10

Leu	Val	Leu	Gln	His	Gly	Val	Ala	Pro	Ala	Asn	Leu	His	Cys	His	Lys	
							50				55				60	

15

Leu	Asn	Pro	Leu	Leu	Asp	Ile	Asp	Gly	Phe	Asn	Val	Val	Phe	Pro	Gln	
							65				70				75	

Ser	Glu	Thr	Pro	Leu	His	Ser	Ser	Leu	Gln	Leu	Leu	Gly	Gly	Tyr	Gln	
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gccggagttat	ctggagtagt	caaagtgtt	ctcgctttga	aacataagca	acttccacct	180	
tcctgtcatc	tggtgaaaat	caatgagcat	atcaaccttgc	aggacagtcc	attttatatc	240	
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5	1	5	10	15
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20	25	30
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Pro Tyr Thr Glu Lys Lys Asn Tyr Cys Ala Ser Gly Ser Val Lys Ser

35	40	45
----	----	----

10Asn Ile Gly His Leu Thr Ala Ala Gly Val Ser Gly Val Val Lys Val

50	55	60
----	----	----

Leu Leu Ala Leu Lys His Lys Gln Leu Pro Pro Ser Cys His Leu Val

15	65	70	75	80
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Lys Ile Asn Glu His Ile Asn Leu Glu Asp Ser Pro Phe Tyr Ile Asn

20	85	90	95
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Ala Val Ser Ser Phe Gly Ser

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gtcgctggtc tcatcaagac ggtgatggca ctcaaggcgc gtcagatacc gcctagctg 180	
35cactttgaga ccccccaatcc gcagatcgat tttgccgaca gtccccttta tgtaaataca 240	
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Thr	Gln	Lys	Lys	Lys	Tyr	Cys	Ala	Ile	Gly	Ser	Val	Lys	Ser	Asn	Ile
10														20	30

Gly	His	Ala	Asp	Thr	Ala	Ala	Gly	Val	Ala	Gly	Leu	Ile	Lys	Thr	Val
														35	40

15	Met	Ala	Leu	Lys	Ala	Arg	Gln	Ile	Pro	Pro	Ser	Leu	His	Phe	Glu	Thr
														50	55	

20	Pro	Asn	Pro	Gln	Ile	Asp	Phe	Ala	Asp	Ser	Pro	Phe	Tyr	Val	Asn	Thr
														65	70	

25	Thr	Leu	Lys	Asp	Trp	Asn	Thr	Asn	Gly	Val	Pro	Arg	Arg	Ala	Gly	Val
														85	90	

30	Ser	Ser	Phe	Gly	Ile	Gly										
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	gctggcattg	ctggacttct	caagatcgta	atggcgatga	agcatcgta	actgccggcg	180
	agcttgaatt	ttgaaacacc	aaatccagac	ctggatctgg	agaatagtcc	gttcttcatc	240
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<400> 28

Val Val Gly Asp Pro Ile Glu Val Val Gly Leu Thr Lys Ala Tyr Gln
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10 Ala His Thr Gln Glu Arg Gln Tyr Cys Gly Leu Gly Ser Val Lys Thr
20 25 30

Asn Ile Gly His Thr Asp Ser Ala Ala Gly Ile Ala Gly Leu Leu Lys
35 40 45

15

Ile Val Met Ala Met Lys His Arg Gln Leu Pro Pro Ser Leu Asn Phe
50 55 60

Glu Thr Pro Asn Pro Asp Leu Asp Leu Glu Asn Ser Pro Phe Phe Ile
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Gln Thr Lys Leu Lys Asp Trp Glu Ser Val Gly Pro Arg Arg Ala Ala
85 90 95

25 Leu Ser Ser Phe Gly Leu Gly
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<222> (386) .. (388)

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<223> TTGAAA may be a possible -35 transcription control sequence

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<222> (458)..(463)
<223> GATAAT may be a possible -10 transcription control sequence

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<222> (474)..(502)
<223> ATCAATAAAAA and TTTTATTGAT are inverted repeats

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<222> (576)..(583)
<223> TGAGGAAT may be a possible SD sequence

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<222> (565)..(567)
<223> ATG encoding M is presumptive start of PKS Open

25 reading frame

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<222> (589)..(591)

30<223> GTG encoding V is is possible alternative start of PKS Open reading frame

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- <210> 32
- <211> 4744
- <212> DNA
- <213> Endobugula sertula

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- <220>
- <221> misc_feature
- <222> (1)..(4744)
- <223> N refers to any nucleotide

25

- <400> 32

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30<211> 1954

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<223> N refers to any nucleotide

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<212> DNA

<213> Endobugula sertula

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<223> N refers to any nucleotide

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 15<212> DNA
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 20<222> (1)..(2132)
 <223> N refers to any nucleotide

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 aaaaaggccc aaymtc当地 waraacrkkc cawwaatsss gawaasmcyy ccagawarwa 240
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<212> DNA

25<213> Endobugula sertula

<220>

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30<223> N refers to any nucleotide

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 naaaaATNNCG ggggntggc cNtttaaana acccccccnt ttncaaaaaaa tgcgarrggk 240
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Glu Ser Gln Glu Ala Trp Trp Ser Arg Trp Asn Thr Glu Tyr Lys His
 1170 1175 1180

15Tyr Gln Asn Asp Pro Glu Lys Lys Thr Leu Ala Ile Leu Ile Asn Asp
1185 1190 1195 1200

Cys Leu Gln Ala Leu Pro Gly Val Leu Ser Gly Glu Gln Leu Ile Thr
1205 1210 1215

20

Asp Ile Ile Phe Pro Asn Gly Ser Met Glu Lys Met Glu Gly Leu Tyr
 1229 1225 1230

Lys Asn Asn Arg Ile Ala Asp Tyr Cys Asn Gln Cys Val Gly Asp Leu
25 1235 1240 1245

Leu Val Gln Phe Ile Glu Ala Arg Leu Ser Arg Asp Ala Asn Ala Arg
1250 1255 1260

301le Arg Ile Ile Glu Ile Gly Ala Gly Thr Gly Gly Thr Thr Ala Ile
1265 1270 1275 1280

Val Leu Pro Met Leu Gln Ala Tyr Gln Asp His Ile Asp Thr Tyr Cys
1995 1996 1997

25

Tyr Thr Asp Val Ser Lys Ala Phe Leu Met His Gly Gln Glu His Tyr
1300 1305 1310

Gly Glu Gln Tyr Pro Tyr Leu Ser Tyr Cys Leu Cys Asn Ile Glu Gln
18 1815 1826 1825

Asp Leu Val Ala Gln Gly Ile Ser Val Gly Asp Tyr Asp Ile Ala Ile
 1330 1335 1340

Ala Ala Asn Val Leu His Ala Thr Arg Asn Ile His Glu Thr Val Ser
 51345 1350 1355 1360

His Val Arg Gln Ala Leu Ala Ala Asn Gly Leu Leu Ile Leu Asn Glu
 1365 1370 1375

10Phe Ser Gln Lys Ser Val Phe Ser Ser Val Ile Phe Gly Leu Ile Asp
 1380 1385 1390

Gly Trp Ala Leu Ser Glu Asp Thr Gly Leu Arg Ile Pro Gly Ser Pro
 1395 1400 1405

15
 Gly Leu Tyr Pro Lys Gln Trp Gln Ala Val Leu Glu Ala Ser Gly Phe
 1410 1415 1420

Gly Asp Val Glu Phe Pro Leu His Asp Ala Arg Glu Leu Gly Gln Gln
 201425 1430 1435 1440

Ile Ile Leu Ala Thr Asn Ala His Ala Asn Val Ala Ser Asp Leu Ala
 1445 1450 1455

25Thr Ser Val Ile Asp His Ala Pro Lys Arg Leu Pro Ser Ala Glu Val
 1460 1465 1470

Ser Met Asp Glu Arg Val Ser His Asp Ala Met Met Lys Ala Ser Val
 1475 1480 1485

30
 Lys Gln Leu Leu Val Glu Gln Leu Ser Gln Ser Leu Lys Leu Asp Met
 1490 1495 1500

Asn Glu Ile His Pro Asp Glu Ser Phe Ala Asp Tyr Gly Val Asp Ser
 351505 1510 1515 1520

Ile Thr Gly Ala Ser Phe Ile Gln Gln Leu Asn Asp Thr Leu Thr Leu
 1525 1530 1535

40Thr Leu Lys Thr Val Cys Leu Phe Asp His Ser Ser Val Asn Arg Leu

1540

1545

1550

Thr Ala Tyr Leu Leu Ser Asp Tyr Gly Asp Asp Ile Ala Gln Trp Leu
 1555 1560 1565

5

Ala Thr Ala Pro Ala Leu Val Asp His Pro Gln Ser Val Val Ser Gln
1570 1575 1580

Val Leu Pro Glu Arg Ser Pro Ala Ser Thr Gln Ala Lys Pro Leu Pro
101585 1590 1595 1600

Ser Val Pro Pro Ser Leu Ser Met Glu Ser Pro Val Gln Gln Glu Ser
1605 1610 1615

15Ile Ala Ile Ile Gly Met Ser Gly Arg Phe Ala Ala Ser Glu Asn Leu
1620 1625 1630

Glu Ala Phe Trp Gln Gln Leu Ala Gln Gly Val Asp Leu Val Glu Pro
1635 1640 1645

20

Ala Ser Arg Trp Gly Pro Gln Ala Glu Thr Tyr Tyr Gly Ser Phe Leu
 1650 1655 1660

Glu Ala Ser Tyr Met Asp Pro Gln Gln Arg Cys Phe Leu Glu Glu Ser
1685 1690 1695

30Trp Asn Ala Leu Glu Asn Ala Gly Tyr Val Gly Asp Gly Ile Glu Gly
1700 1705 1710

Lys Arg Cys Gly Ile Tyr Ala Gly Cys Val Ser Gly Asp Tyr Ala Gln
1715 1720 1725

35

Leu Leu Gly Asp Gln Pro Pro Pro Gln Ala Phe Trp Gly Asn Ala Ser
 1730 1735 1740

Ser Ile Ile Pro Ala Arg Ile Ala Tyr Tyr Leu Asn Leu Gln Gly Pro
 401745 1750 1755 1760

Ala Thr Ala Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Val His
1765 1770 1775

Leu Ala Cys Gln Ala Leu His Leu Asp Glu Met Glu Met Ala Leu Ala
5 1780 1785 1790

Gly Gly Val Ser Leu Tyr Pro Thr Pro Ile Ile Val Glx Val Phe Ala
1795 1800 1805

10Trp Cys Arg Tyr

1810

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